that as much as twenty-nine gallons of water on an average to every house in a district in London, where the sewers were gauged for the purpose on the days of the water supply, is wasted in running or rather dribbling over the waste pipes of the cisterns after the latter have become filled. This waste is without doubt owing to the imperfection of the ball and cock apparatus, from carelessness, or from mechanical defects of construction.

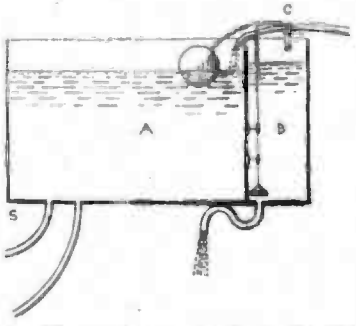
As a consequence of the above, there must be an enormous quantity of water in the aggregate in the metropolis pass uselessly off (assuming the waste to be general), but which, disposed of by concentrating its volume and power judiciously, might be made to effect the greatest advantages in the way of cleansing, as often as the mains are opened for a supply.

How is this concentration of the quantity of water now wasted to be effected and disposed of so as to act with force and power for cleansing purposes?

The answer will be found in the adoption of a simple self-acting mechanical arrangement, comparatively inexpensive, to be attached to and become part of every house cistern, which shall discharge into the drains, at any point most desirable, a given quantity of water, with great force, as often as the days of supply may occur, retaining, at the same time, sufficient for domestic uses.

One of the conditions necessary to effect this object will be, the division of the cistern into two unequal portions, by a partition, the smaller division to contain the quantity to be discharged for cleansing the drains, the larger retaining its contents for household purposes. Should it happen that the partition would reduce the reserved contents below the quantity demanded for domestic uses, an addition may be made to its end or sides, or the depth increased; but this would be seldom necessary, as there is generally found a portion of the contents remaining over from one supply day to another. At all events, in the contemplation of a more frequent supply than at present, as recommended by the Sanitary Commission, the contingency of a failure of water in the cistern need scarcely be taken into the account.

The division of the cistern, and an apparatus for effecting its self-discharge, will be best explained by reference to the annexed engraving of an arrangement invented by Mr. John Hosmer.



A and B—two separate divisions in the same cistern: A being for domestic purposes, B for cleansing the drains and sewers. C—a two-way inlet cock, with ball and lever,—one aperture opening into B, the other into A.

The water from the main being turned on the division B of the cistern becoming first filled, it flows over into A. The water rising in A lifts the ball and lever, until stopped by the pressure of the fluid column upon the valve at the bottom of the division B, with which it is connected by a rod and chain. The water continuing to rise, the ball becomes nearly immersed, when its superior buoyancy overcoming the pressure upon the valve, lifts the latter suddenly to such a height as to allow of a free flow through the syphon-trapped pipe into the drain. The larger division of the cistern A becoming filled, is retained for domestic purposes.

A few words only will be necessary, in alluding to the advantages to be gained in cleansing the sewers, as well as the drains, by the general adoption of this self-acting principle.

From all the cisterns in a district of simultaneous supply of water, the discharges will be simultaneous, or nearly so; first performing the work of thorough cleansing in the house drains, they would become united in the sewers, there forming so powerful a current, as thoroughly to cleanse them also.

Take, for instance, a street of one hundred houses on each side, with its sewer down the centre, and suppose every cistern therein divided, so as to discharge each its thirty gallons of water. Here would be the large quantity of 6,000 gallons poured suddenly into the sewer, forming a powerful current, or assisting the cleansing effect of other discharges should the sewer have collateral ones running into it. And all this good performed with the same quantity of water now absolutely wasted.

RAILWAY JOTTINGS.

A NEW and powerful narrow-gauge locomotive, with an extreme breadth of something like 9 feet 4 inches on the 4 feet 8½ gauge! is in course of construction at Wolverton on a plan recommended by Mr. M'Connell, the locomotive superintendent. The firebox overhangs the rails about 7 inches on either side, and is 5 feet 5 inches in height, as in length. The centres of the cylinders which are outside ones of 20-inch stroke, are 7 feet 6 inches apart. The driving wheels are 6 feet in diameter. The top of the boiler is 7 feet 9 inches from the rail. The distance between the leading and driving wheels is 6 feet 8 inches, and the distance between the extreme bearings 17 ft. 2 inches. In spite of these formidable looking measurements, which a writer in the *Morning Herald* regards as hazardous, Mr. M'Connell expects that this engine will run steady at high velocities.——Some extraordinary rates of speed are said to have been attained at Leeds, with light trains, by another new passenger engine, with four wheels of 7 feet diameter, and a shaft in place of a crank axle. The cylinders are within 12 inches of the road. A speed of 74 miles an hour is said to have been maintained by this engine, with a train of 6 carriages. Messrs. Wilson and Co. are the builders.——The saving effected in cost of water at Camden-town station, and the hotels at Euston-square, from the well lately sunk by the London and North-Western Company at Camden-town, will be little short of 1,200*l.* a year, while the outlay for sinking the well, for engine, pumps, and main to Euston-square, will not exceed 3,100*l.*——According to the local papers, a bridge recently constructed at a large outlay by the South-Eastern, under their engineer, Mr. Bull, is about to assume a novel appearance—the ends having dropped, so as to fail in acting upon the rollers provided for that purpose. It has been deemed expedient to suspend them by iron rods, so as to keep the sides and centre curved ribs in their respective places; so that, when finished, this may be aptly termed a swivel and suspension-bridge.——The Great Western are taking about 250*l.* per week for the carriage of fish from the coast of Devon for the London market.——Captain Simmons has inspected the Dee viaduct structure, and will report to the Board of Trade. The bridge, says the *Railway Chronicle*, was repeatedly tested by heavy luggage trains, purposely loaded, and moved by two heavy locomotives. The speed at times was as high as 40 miles an hour. The utmost deflection obtained was 3-16ths of an inch in the span of 30 feet, and the vibration is said to have been scarcely perceptible.——The Wakefield, Pontefract, and Goole line was opened on Wednesday week. It is 28½ miles in length. At Goole the line opens close to a railway dock, 600 feet long by 250 broad, and is connected with other docks, extending in all over 15 to 16 acres, with 18 feet water at spring tides. The Goole and Knottingley Canal is crossed by an iron bridge 88 feet 6 inches, in single span, and covering both the canal and the travelling path of 11 feet wide. The Knottingley station is said to be in the Swiss style, and of white brick, of which almost every other alternate station is built. Mr. Thornton is the contractor for the whole works, and Mr. Harris the engineer.——The *Sheffield Iris* states that a third portion (within a fortnight) of the tunnel connecting the Sheffield and Manchester with the Midland station, has fallen in.——The Oxford, Worcester, and Wolverhampton line is nearly completed, so far as regards the earthwork and the masonry. One of the bridges on the line, at Martin, according to the *Worcester Journal*, had fallen in. The Worcester tunnel is 264 yards long, and cost about 13,000*l.* The station is in progress. The elevation is Italian, the centre, with a rustic stone basement of booking-offices, surmounted by a stone arcade of nine openings, topped by a pierced stone parapet, and flanked by a campanile of brick and stone; the wings of red brick, with stone dressings, &c.——One of Messrs. Stephenson and Co.'s agents, Mr. Hugh Hart, was lately accused at Dumfries of culpable neglect of duty, in allowing a precipitous bank on the Caledonian line, at Dryfesdale, to remain unfenced, whereby a serious accident ensued. The evidence, however, was contradictory, and the case was dismissed.——The receipts of the French lines have greatly declined, three-fourths of the traffic on some of them having been lost.——End of 1847, 1,395 miles of rail had been opened in France, 3,291 in Germany, 546 in Belgium, 342 in Italy, about 250 in Hungary, 213 in Poland, 153 in Holland, 138 in Denmark, 51 in all Russia, and 15 in Switzerland.——During six months past, 110 persons have been killed by railway, and 74 injured.——Directors are advised to cultivate Indian corn on sunny slopes, as 'food for the million.'——Government, it is said, have taken possession of the electric telegraph for the present, even to the exclusion of the press, and of everything but the state of the markets.

COMPETITIONS.

THE Worcester Corn Exchange Company have issued a vague and unsatisfactory advertisement for "plans, specifications, and estimates," for a corn exchange. No premiums; no pledges. Architects who reply to such are degrading themselves and their profession.——In respect of the "Durham New County Infirmary" competition, a correspondent says he wrote to ask,—"Whether the successful competitor would be intrusted with the execution of the work if he were an architect of known competency? and on the 15th the reply was—'Most probably the successful competitor would be intrusted with the execution of the works.' On applying again, on the 16th, for a clear answer to the former inquiry, and likewise for a defined and full explanation of the words 'most probably,' an answer was received, dated April 2nd (the time of sending being the 7th of April), saying that no definite answer could be given to the queries, and that one must judge for one's self of the meaning to be attached to the words referred to. To this I replied that, as the words 'most probably' do not convey an assurance that the successful competitor, if he be an architect of known competency, will be employed, the risk of sending in is declined, as the inquirer would only have competed for the honour of being employed as architect, and not for the sake of 20*l.* and 100*l.* premiums."——Relative to the Fulham Union Workhouse competition we have some loud complaints. Several weeks have elapsed since the time fixed for a decision, and, indeed, since the decision was made,—yet no public announcement has been made by the guardians, and the competitors are wholly in the dark.

THE NEW DUTIES ON TIMBER.—By the Act 9 and 10 Vic., chap. 24, it is enacted that "from and after the 6th April, 1846, all timber or wood *not* being deals, battens, boards, staves, handspikes, oars, lathwood, or other timber, or wood, sawn, split, or otherwise dressed (except hewn), and not being timber or wood otherwise charged with duty, be charged for the load of 50 cubic feet the sum of 15*s.*; and deals, battens, boards, or other timber, or wood, sawn or split, and not otherwise charged with duty, for the load of 50 cubic feet, 1*l.*" These duties having come into operation yesterday, we understand that upwards of 3,000 loads of deals, battens, &c., and about 800 loads of hewn timber, were cleared at the Custom-house at this port, the duty on which would be about 3,600*l.*—*Hull Packet.*

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